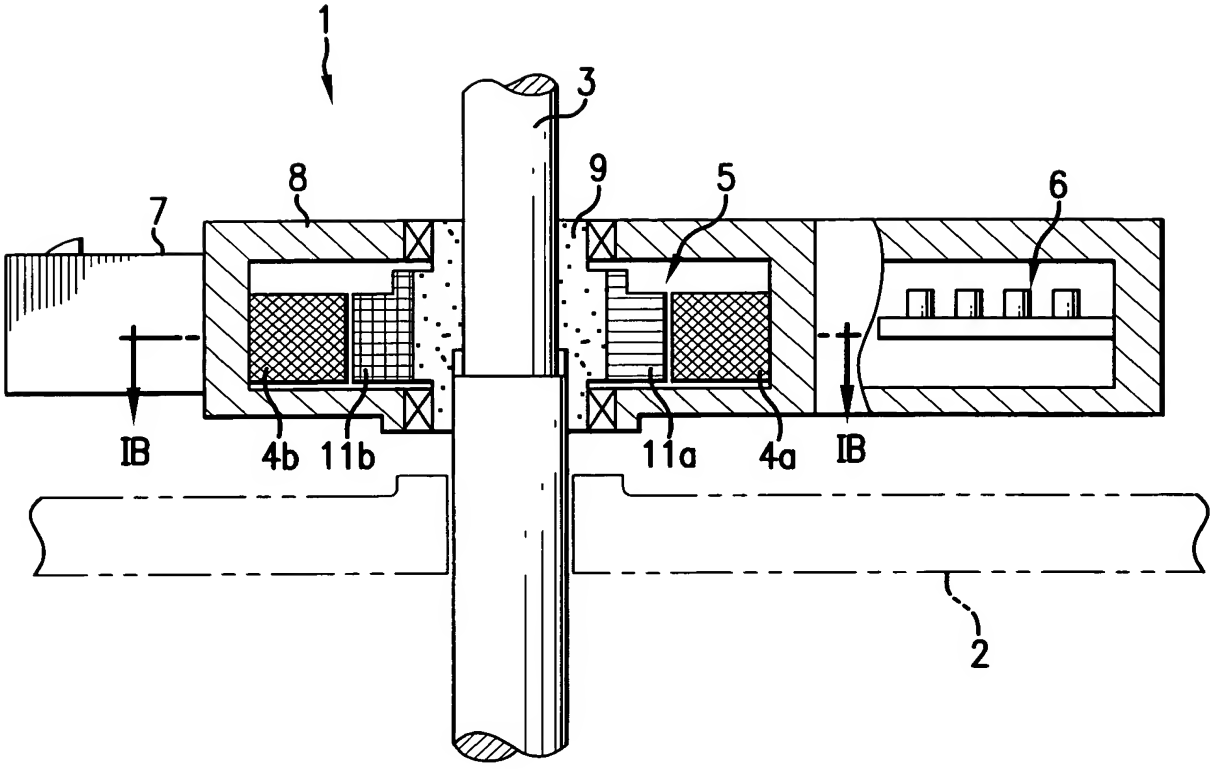

FIG. 1a

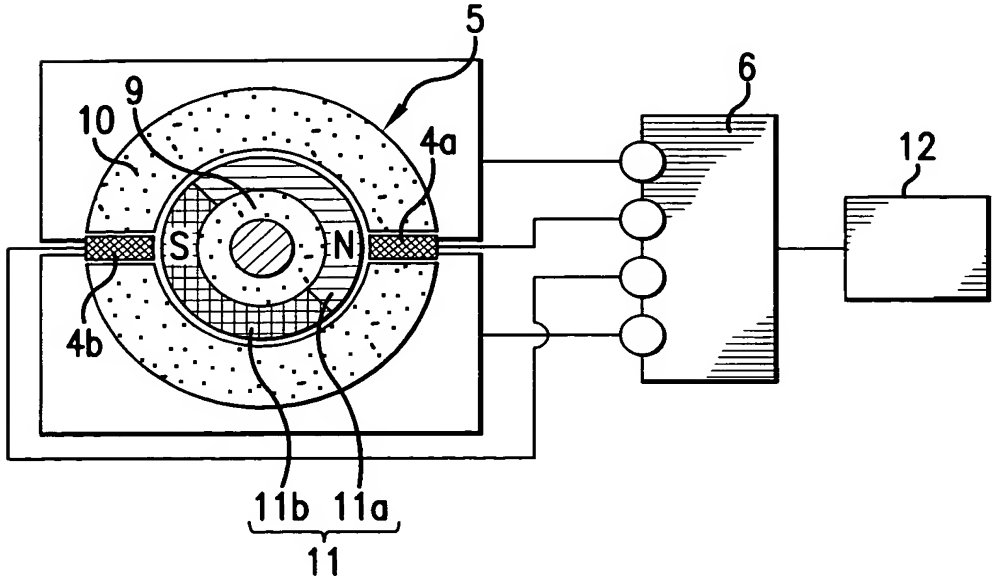

FIG. 1b

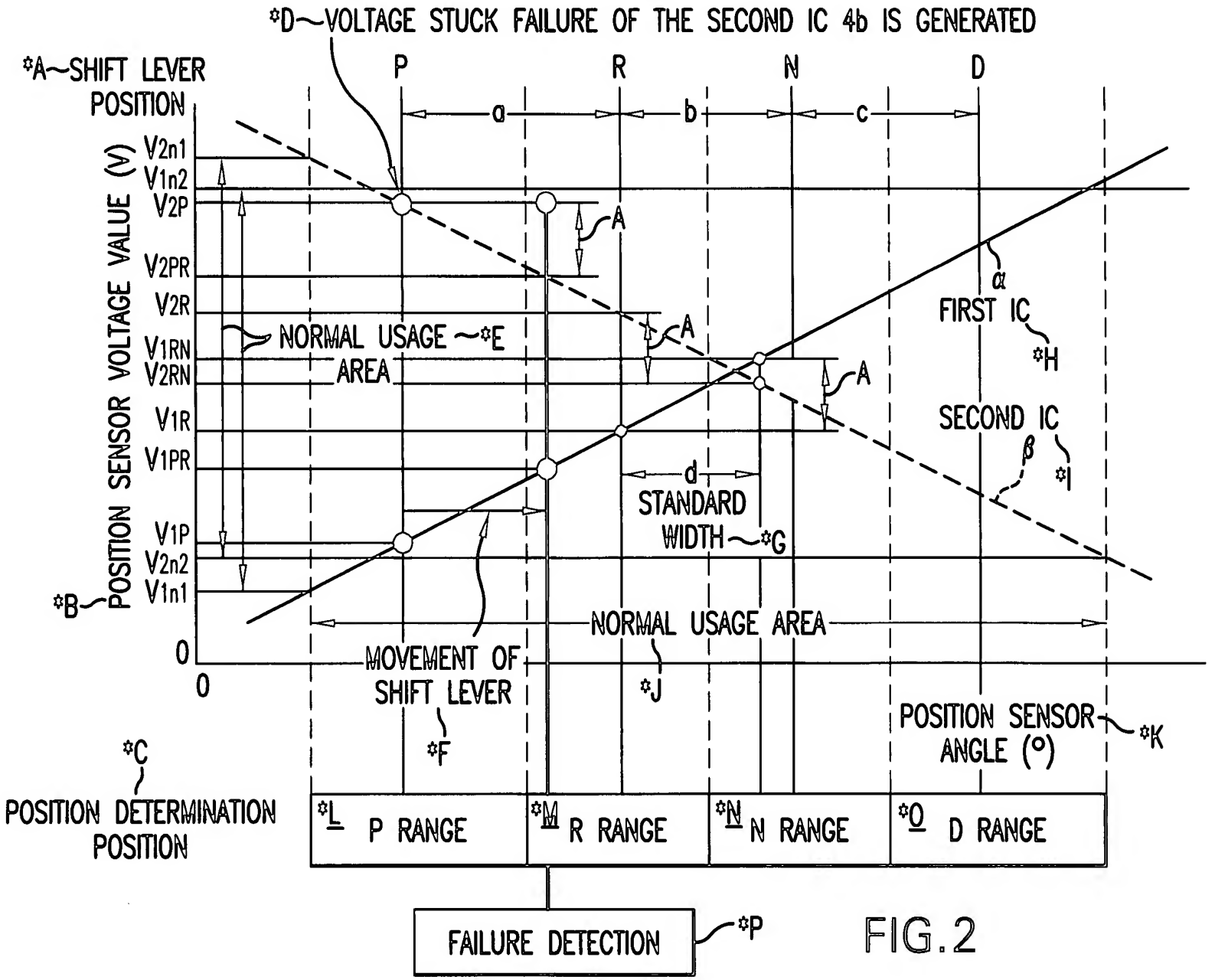
*D~VOLTAGE STUCK FAILURE OF THE SECOND IC 4b IS GENERATED
*A~SHIFT LEVER POSITION
P
R
N
D
a
b
c
POSITION SENSOR VOLTAGE VALUE (V)
V2n1
V1n2
V2P
V2PR
V2R
V1RN
V2RN
V1R
V1PR
V1P
V2n2
V1n1
0
*B
A
NORMAL USAGE AREA *E
FIRST IC *H
α
SECOND IC *I
β
d
STANDARD WIDTH *G
NORMAL USAGE AREA *J
MOVEMENT OF SHIFT LEVER *F
POSITION SENSOR ANGLE (°) *K
*C
POSITION DETERMINATION POSITION
*L P RANGE
*M R RANGE
*N N RANGE
*O D RANGE
FAILURE DETECTION *P

FIG. 2

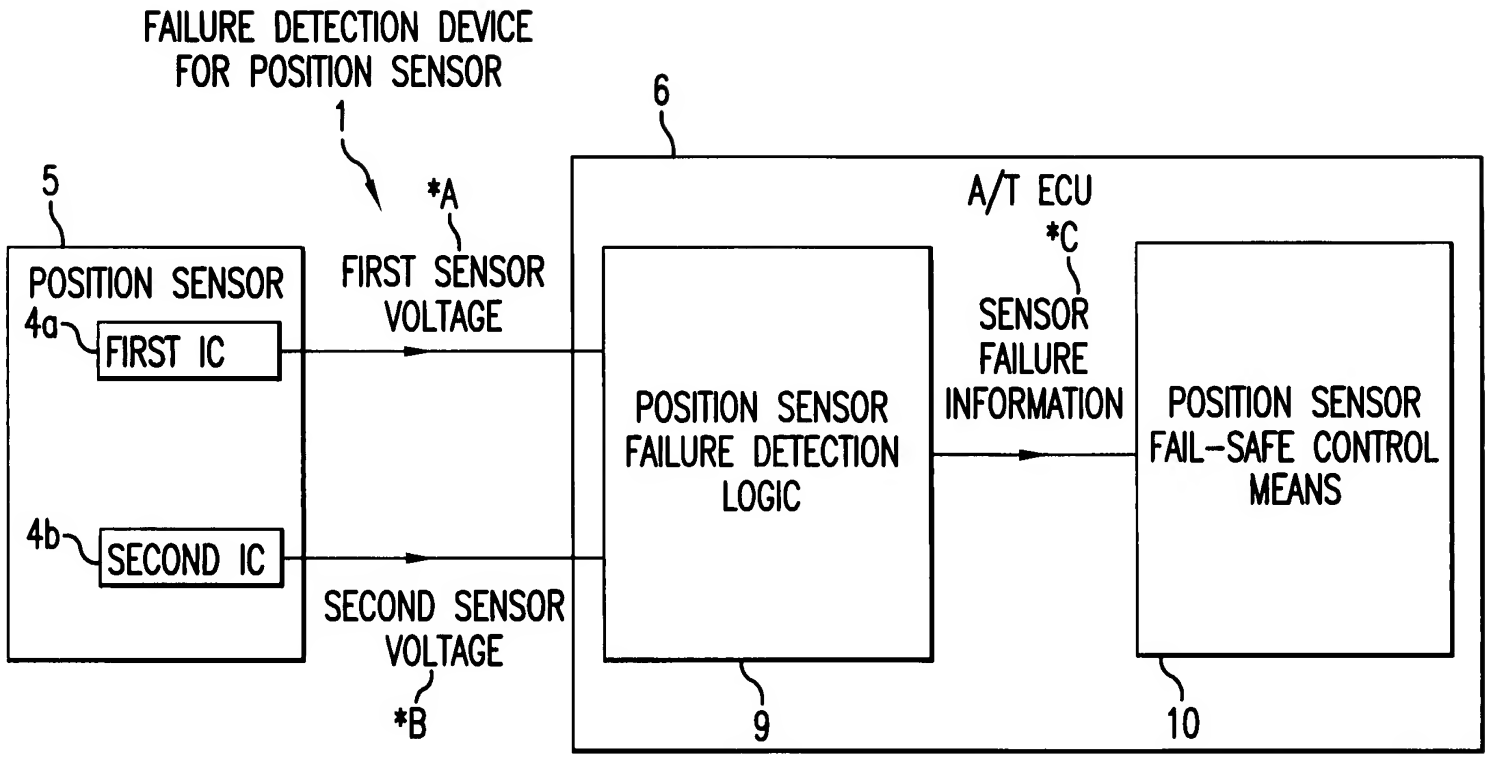
FAILURE DETECTION DEVICE
FOR POSITION SENSOR
1
6
5
*A
A/T ECU
*C
POSITION SENSOR
4a
FIRST IC
FIRST SENSOR
VOLTAGE
SENSOR
FAILURE
INFORMATION
POSITION SENSOR
FAILURE DETECTION
LOGIC
POSITION SENSOR
FAIL-SAFE CONTROL
MEANS
4b
SECOND IC
SECOND SENSOR
VOLTAGE
*B
9
10

FIG.3

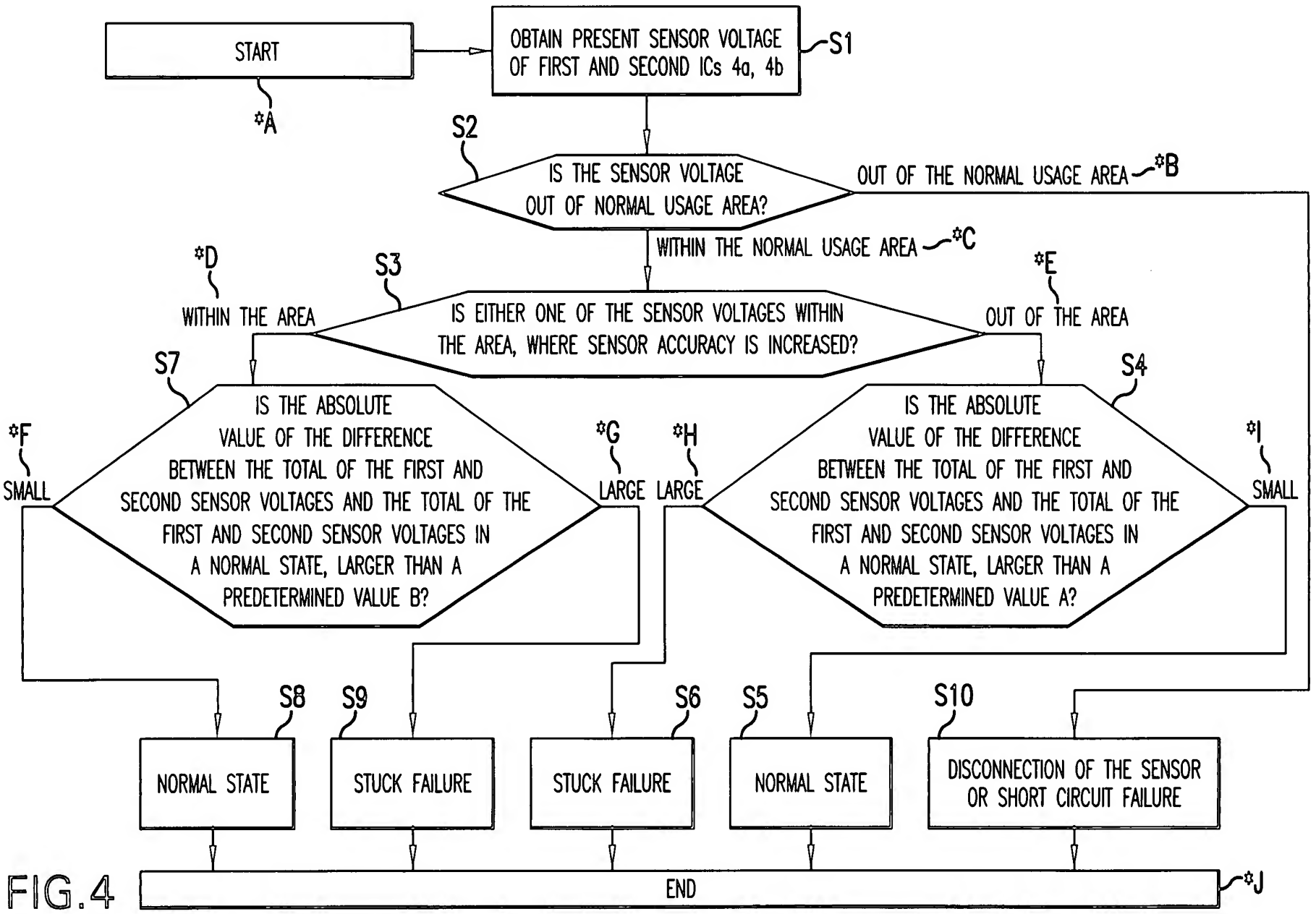
START
*A
OBTAIN PRESENT SENSOR VOLTAGE OF FIRST AND SECOND ICs 4a, 4b
S1
S2
IS THE SENSOR VOLTAGE OUT OF NORMAL USAGE AREA?
OUT OF THE NORMAL USAGE AREA
*B
WITHIN THE NORMAL USAGE AREA
*C
*D
WITHIN THE AREA
S3
IS EITHER ONE OF THE SENSOR VOLTAGES WITHIN THE AREA, WHERE SENSOR ACCURACY IS INCREASED?
*E
OUT OF THE AREA
S7
IS THE ABSOLUTE VALUE OF THE DIFFERENCE BETWEEN THE TOTAL OF THE FIRST AND SECOND SENSOR VOLTAGES AND THE TOTAL OF THE FIRST AND SECOND SENSOR VOLTAGES IN A NORMAL STATE, LARGER THAN A PREDETERMINED VALUE B?
S4
IS THE ABSOLUTE VALUE OF THE DIFFERENCE BETWEEN THE TOTAL OF THE FIRST AND SECOND SENSOR VOLTAGES AND THE TOTAL OF THE FIRST AND SECOND SENSOR VOLTAGES IN A NORMAL STATE, LARGER THAN A PREDETERMINED VALUE A?
*F
SMALL
*G
LARGE
*H
LARGE
*I
SMALL
S8
NORMAL STATE
S9
STUCK FAILURE
S6
STUCK FAILURE
S5
NORMAL STATE
S10
DISCONNECTION OF THE SENSOR OR SHORT CIRCUIT FAILURE
END
*J

FIG.4

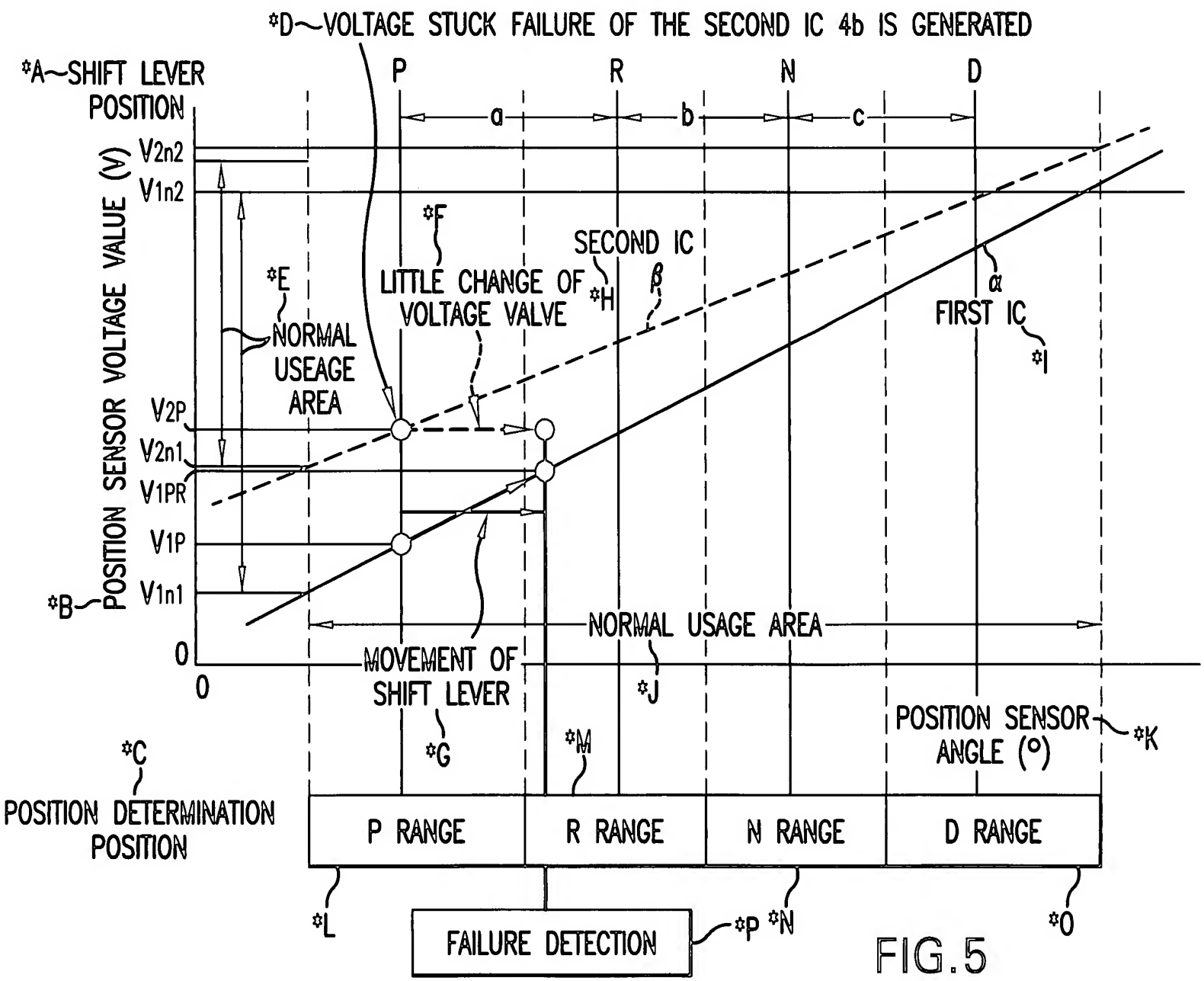
*D~VOLTAGE STUCK FAILURE OF THE SECOND IC 4b IS GENERATED
*A~SHIFT LEVER POSITION
P
R
N
D
a
b
c
V2n2
V1n2
*F
SECOND IC
*H
β
α
*E
LITTLE CHANGE OF VOLTAGE VALVE
FIRST IC
*I
NORMAL USEAGE AREA
V2P
V2n1
V1PR
V1P
V1n1
*B~POSITION SENSOR VOLTAGE VALUE (V)
NORMAL USAGE AREA
0
0
MOVEMENT OF SHIFT LEVER
*G
*J
*M
POSITION SENSOR ANGLE (°)
*K
*C
POSITION DETERMINATION POSITION
P RANGE
R RANGE
N RANGE
D RANGE
*L
*N
*O
FAILURE DETECTION
*P

FIG.5